NOVA SCHOOL OF
BUSINESS & ECONOMICS

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Digi Communications-an Eastern European rising star

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Abstract

This paper focuses on the valuation of the Romanian telecommunication company, Digi Communications. The report deep dives on the company financials and the telecommunication industry. On one hand, we derive all the revenue drivers to forecast free cash flows. On the other hand, we perform a relative valuation using a specific peer group.

Keywords (up to four)
Digi Communications, Eastern Europe

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DIGI COMMUNICATIONS NV

COMPANY REPORT

TELECOMMUNICATIONS

06 JANUARY 2020

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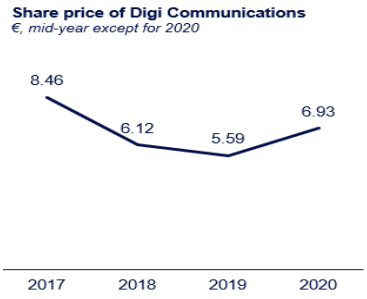
Equity Research Report

Highlights to consider:

- Digi communications is engaged in a sector that contradicts the macroeconomic environment – while other industries present a slow-down tendency, telecommunications keep on rising globally as the number of users increases yearly by
- The company's revenues are driven by number of households/populations, penetration rate, market share and Eurozone inflation.
- Digi's cash flows are generated very fast and suppliers are essentially financing the company's operational activity, constituting a risk of co-dependence.
- The company endured into execution risk resulting from the inability to execute its inventories and receivables, leading to a low net working capital of approximately €300m.
- The EBITDA margin was 31.3% in 2018.
- Since the last 5 years, the company presents the highest D/EV ratio in Central and Eastern Europe, with an astronomic value of 72%, resulting from an aggressive investment strategy.
- Overall, Digi has ahead a set of opportunities which will translate into €4.5m net added revenues, until 2028.

Digi Communications is a telecommunications company with offerings in 5 different business segments. It has operations in Romania, Hungary, Spain and Italy, being the leading provider of telecommunication in both Romania and Hungary.

Recommendation:	**BUY**
Price Target FY20:	**10.55 €**
Price (as of 7-Jan-20)	**6.98 €**
Reuters: Bloomberg	
52-week range (€)	5.17-8.25
Market Cap (€m)	698.7
Outstanding Shares (m)	100.1
Moody's Credit Rating	B1
Cost of Debt	3.0%
Raw Beta	0.72
Cost of equity	6.1%
WACC	5.4%
Long term growth	2.4%
RONIC (2028)	7%



(Values in € millions)	2018Y	2019E	2020E
Market Capitalization	349.2	688.5	649.9
Revenue, Adj.	1038.1	1170.7	1247.3
EBITDA, Adj.	314.7	354.0	386.5
Net Income, Adj.	20.0	45.4	64.7
EPS/ Adj.	0.3	0.28	0.46
P/E	15.79	17.89	
CAPEX	447.1	251.2	281.5
Accounts Receivable	6.0	98.9	103.6
Inventory	16.6	16.8	17.6
Working Capital	-334.8	-300.3	-261.9
Total Debt	-884.8	-821.7	-933.4
Total Equity	292.1	311.0	933.4

Sources: Bloomberg and report analysis

Executive summary

The following is a proposal for an investment recommendation on Digi Communications NV's stock. It aims to provide insights and a detailed analysis on how the market is perceiving Digi's stock and what will cause it to reach the share price target of our recommendation.

Digi Communications NV is a company operating in the telecommunications sector since 2005. The company has its official seat in Amsterdam, The Netherlands, and its principal place of business in Bucharest, Romania. The Chief Executive Officer and Executive member of the Board of Directors is Serghei Bulgac.

Its IPO occurred in June of 2017 with class B shares being listed in the Bucharest Stock Exchange (BSE). As so, the company is both submitted to the BSE and the Dutch Corporate Governance Codes. Digi has passed from being a merely cable operator unknown in Europe, to offering services in five different segments – Cable TV, Fixed Internet and Data, Mobile Telecommunications, DTH and Fixed-line Telephony. Currently, Digi has operations in Romania, Hungary, Spain and Italy. In 2018, they have surpassed their threshold of €1 billion revenues.

While individual stocks can be quite volatile, the telecom sector overall has demonstrated stable long-term growth, as telecommunications have become an increasingly important basic industry, impervious to business cycles. Industry trends like the growth in data consumption – due to an intensive use of video content, high-definition streaming which demand high bandwidth capacity – sustain this consideration.

The analysis conducted in this report shows that Digi Communications NV is misjudged by the market: the overall target share obtained by a weighted average of the DCF valuation and the multiples approach, is €10.55 in 2018, against a current price of €6.98. Consequently, our investment thesis yields a recommendation to Buy. The arbitrage opportunity of an investor would be of €226,429,304. The reasons behind the market's beliefs possibly lie within the undervalue of the weighted average cost of capital WACC, which is claimed to be of around 2.5% vs target WACC of 5.4%.

Company Overview

Digi is a telecommunications company based out of Bucharest, Romania. The company resulted from the merger of Romania Cable Systems (RCS) and Romania Data Systems (RDS), that took place in April of 2005. It started off as a start-up cable operator in an emergent country in Central Europe, Romania, which continues to bring the main revenue stream. Today, Digi relies on an extensive range of services, with offerings in other strategic locations – Hungary, Spain and Italy. Its revenues are a direct function of RGUs (Revenue Generating Units) which simply translates into a service subscription account from a customer, and ARPUs (Average Revenue Per User). To a geographically-focused extent, Digi is the leader of telecommunication solutions based on the number of RGUs. The company operates in five main business segments: Cable TV, Fixed Internet and Data, Mobile Telecommunication Services, Fixed-line Telephony and DTH Satellite Television.

Acquisition of Invitel - May 2018

In May 2018, Digi announced the end of the acquisition of Invitel. Invitel is a Telecom company and one of the leaders of the Hungarian telecommunications market for over two decades. The portfolio of services passes by residential and small business customers and includes multimedia and entertainment services, digital and HD television, fast internet offerings and fixed telephony services across its regional networks. This opportunistic acquisition is the result of Digi's strategy to continue to grow its RGUs. As of December 31st, 2018, Digi had a total of RGUs of 14.9 million, derived from all the five business segments. From its acquisition till the end of the year, Invitel contributed with approximately 718,000 RGUs to this number, having a total weight of 4.8% for this period.

Business Lines

The following table shows Digi's business lines in each geographic segment as well as the number of RGUs and weights per business line per geography:

	Cable TV	Fixed Internet	Mobile telco.	Fixed Telephony	DTH	RGUs	Weight
Romania	✓	✓	✓	✓	✓	10 956	67,20%
Hungary	✓	✓	✓	✓	✓	2 421	18,40%
Spain		✓	✓			1 354	12,20%
Italy			✓			195	2,20%
RGUs ('000)	3 994	3 283	4 949	1 885	805	14 926	-
Weight	24,10%	22,90%	31,80%	3,70%	6,20%	-	100,00%

Table 1. Digi Business lines

Mobile Telecommunications

Regarding mobile telecommunications, Digi has developed an advanced 3G and 4G network in Romania, uses Telenor's local network in Hungary and acts as a Mobile Virtual Network Operator[1] (MVNO) in Spain, through Telefónica's network, and in Italy, through TIM's network. The presence of this segment in all of the company's geographies combined with really high penetration (over 100% in all geographies) among other factors (e.g. attractive prices, high demand for content or fixed telephony churn) explain why the mobile telecommunications segment detains the highest weight in Digi's revenues, of 31.8%. Moreover, this segment is expected to keep growing over the forecasting period, driven by market trends like 5G.

Cable TV

Presenting a steady growth, in 2018 this segment occupies the 2nd place in Digi's revenue weights, of 24.1%. The popularity of this line can be explained by the switch from DTH to cable TV, since cable TV offers more commodity and unique programming to end users.

Such switch can be observed in our forecasted income statement – while DTH revenues are going down, cable TV's move in the opposite direction.

Fixed Internet and Data

As an internet service provider (ISP), the company has developed a technologically-advanced fiber-optic network, providing FTTH and FTTE fibre connections. Thus, Digi is able to provide pure fiber straight to homes and enterprises with the fastest speeds available and no copper cables involved, both in Romania (76% coverage power[2]) and Hungary (48% coverage power). This constitutes a competitive advantage and is one of the reasons why the number of revenues keeps growing year-after-year in these two geographies, having a total weight of 76% and 64% in the revenue for fixed internet and data in Romania and Hungary, respectively. Additionally, Digi also makes use of the Invitel's network in Hungary, which is still being upgraded from cable to fibre. In Spain, the company provides internet as reseller through Telefónica's fixed line network. The total weight for this segment is then 22.9%.

DTH

In DTH signal services, Digi is within the whole footprint of Romania and Hungary. However, there are several disadvantages of satellite services –

[1] An MVNO works as a leasing contract – Digi buys wireless capacity from a wholesaler (MNO) and sells it to consumers at retail prices.
[2] Total number of homes passed, by infrastructure, given the number of households within a country

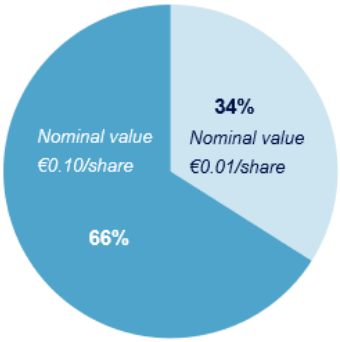
difficulties in clearing the signal in periods of heavy rain and the inability of changing the service provider since the antenna settings are only linked with the same service provider. This leads to high churn rates in this segment, mainly prevenient from rural areas (where DTH is still prevalent), leading to a total weight of 6.2%.

Fixed-line telephony

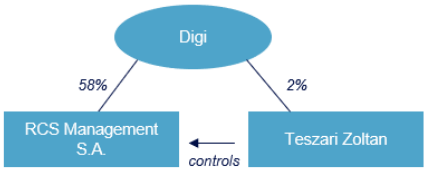
Owning a fixed telephone has no longer great benefits. Over the years, both homes and businesses have been switching to mobile packages driven by the flexibility and price advantages these offers entail. Digi's users are not an exception and fixed-line telephony represents the minority of Digi's revenues (3.7%). Additionally, this is also explained by the effects of the advanced fiber-optic network of the company, enabling fast internet and communications through a bundled offer.

Shareholder Structure

Share capital per class
% share, € nominal value, as of Dec 2018



Main shareholders – class A shares
% share, as of Dec 2018



As of December 31st, 2018, there were 100,000,000 paid and issued shares, divided into 65,756,028 class A shares and 34,243,972 class B shares.

Class A shares have not been admitted to trading on the Bucharest Stock Exchange, as opposed to class B shares. Subsequently, the issued share capital of Digi amounted to €6,918,042.52. All shares are registered and have been created under the law of the Netherlands.

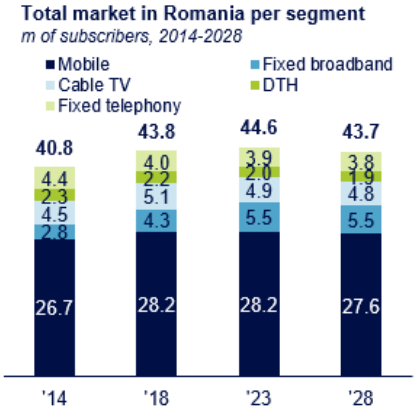
As of 14th January 2019, the Board of Directors converted 1.2 million class A shares, held as treasury shares by the company, into class B shares, making the issued share capital amounting to €6,810,042.52.

In terms of the main shareholder, Teszari Zoltan takes the lead of the group, holding directly 2.28% of class A shares. Being the controlling shareholder of RCSM, Zoltan also holds, indirectly, 57.87% of these shares. Concerning the dividend distribution, all shares are ranked with equal remuneration irrespective of the class or nominal value.

Sector

Telecommunications is a broad industry; however, we dedicate only in sub-sectors in which Digi Communications operates in.

Romania



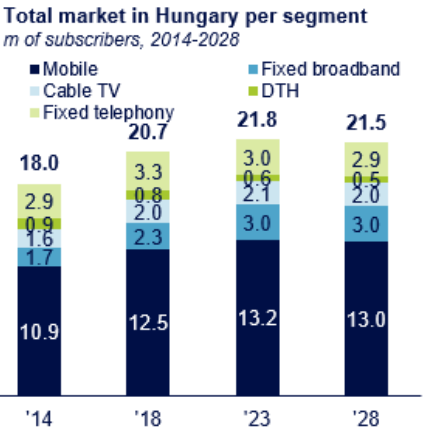
The total telecommunication market of Romania totalled €3.3b in 2016, from which €0.83B came from broadband retail sales. In fixed broadband, the dominant technology is fibre-to-the-home (FTTH) with 54.5% market share followed by DSL at 19% and cable internet with 18% market share. Romania has one of the highest adoptions of FTTH in Eastern Europe. In fact, there is a clear transition of households and businesses changing to fibre. As of 2018, fixed market totalled in 4.3m fixed broadband subscribers, which is expected to reach 5.5m. Digi Communication, the incumbent in Romania, is well positioned for the uptake in penetration. The coverage of fixed broadband stagnates at 87%, which is behind EU member states (ranked 26th in that category among EU countries). In fact, only 30% of rural areas are covered with FTTH/B technologies as compared with an aggregated coverage of 63% in 2018. Romania has received €100m of funds from the EU to address the urban-rural divide. Further grants have been allocated to support private operators developing backhaul in white areas (European Commission, 2018). Digi could benefit from potential funds and deploy in white areas creating a possible upside that has not been considered in the valuation. Finally, Vodafone notified the European Commission of its willingness to acquire Liberty Global in 2018. The acquisition concerns among others, UPC Romania and thus it could influence the competition dynamics in Romania. The cable deal has been accepted and Vodafone acquired Liberty Global for €18.4b (Jörn, 2018). This means UPC Romania is expected to grow faster than historically as it will be backed up by Vodafone.

The mobile market is an oligopoly in Romania with the two largest players, Orange and Vodafone, having more than 70% of market share. There is a total of four Mobile Network Operators (MNOs) and 2 virtual mobile network operators (MVNOS). Nevertheless, the size of MVNOs is very marginal (less than 0.5%). Romania lags EU in terms of 4G coverage with 77% coverage as compared to 94% in EU, yet is growing rapidly (European Commission, 2018). Mobile market is very capital intensive with decreasing margins, making very unlikely the scenario of new entrants. Mobile market in Romania has reached its plateau phase with 28.2m mobile subscribers in 2018, which is expected to decrease to 27.6m by 2028. In November 2018, Romania has launched a public consultation on the implementation of 5G with the auction organized on the 700MHz.The auction will take place in 2020, and all MNOs are expected to take part in it. In 2019, Orange has chosen to start its first 5G offer in Europe in Romania by offering 5G services in three Romanian cities. Digi Communication is threatened as it is still in the testing phase, with first live 5G tests performed in the capital of

Bucharest. Digi faces high competition from the Orange group, which can impact negatively its market shares.

Pay TV market is very large in Romania as 100% of households have access to pay television. Most households watch television through a cable offer (72%), nevertheless DTH TV offer is also popular as compared to other European benchmarks (31%). In 2018, there were 5.1m cable TV subscriptions in Romania and 2.1m DTH subscriptions. Cable TV has reached its plateau in 2018 and DTH is on a decline since 2015. That is due to the very high penetration of pay TV in Romania and the growing popularity of OTT services. Despite of a stagnant market, Orange entered the Cable TV market and secured 143k subscribers in only its first two years of operations. It is expected that Orange will continue to grow at the expense of other operators. Cable TV market is also affected by the Liberty Global deal as UPC had 920k subscribers in 2019 and is expected to continue maintaining its strong position.

Hungary



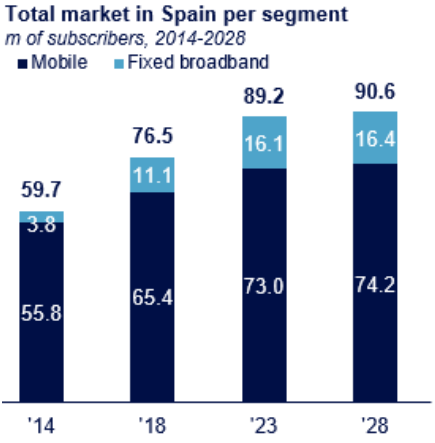
Fixed broadband coverage is within the EU benchmark at 95% of total household and slightly below EU average on rural access with 82% coverage. The main technology is Cable (49%), followed by DSL (27%), and FTTH/B (20%). In terms of penetration, FTTH has a penetration of 67% in 2018 (European Commission, 2018). The incumbent, Telekom Hungary, has an aggressive plan to increase its own coverage. In 2017 solely it connected and upgraded 270k households, from which 100k households in white areas thanks to subsidies. There is heavy financing in place with a €224m state aid programme to put in place to develop FTTH technology in white areas. In 2017, Digi acquired a cable operator Invitel (3% market share in 2017) by Digi. Invitel was a local incumbent, which was present in one third of the country. As of now, together with Digi the merged market share surpasses the Hungarian incumbent Telekom Hungary. UPC is a market leader and plans to rollout out fibre while gradually decommissioning copper infrastructure (ADSL internet). The access to the incumbent's infrastructure is regulated (Magyar, Digi, UPC). This means an open access to incumbent's for copper loops, dark fibre, FTTH, ducts and poles. Digi is the 2nd largest fixed broadband operator in Hungary, yet its market position is threatened by subsidized Telekom Hungary planning to deploy in white areas and UPC Hungary roll-out its own Fibre Infrastructure. Overall, there are 2.3m fixed connections in 2019, which is expected to increase to 3.0m connections by 2028 making it an attractive market for fixed broadband operators.

Fixed phone and fixed-line internet are most likely sold in a bundled offer. For this reason, fixed telephone remains important in Hungary with a penetration of

76% in 2019. The Hungarian fixed telephony is characterized in a geographical division into three concession areas. The local telephone operator Invitel is owned by Digi and covers one third of the territory. The remaining two thirds of the area of Hungary (including the capital Budapest) is under Telekom Hungary.

The Hungarian mobile market despite of asymmetrical regulatory measures imposed by the regulator to enhance competition is stagnant. The number of players has remained the same with 3 MNOs and 4MVNOs (representing 1 % of mobile market size). According to national studies, there has been a significant decrease in the traditional mobile market (e.g. SMS) at the expense of the digital mobile market (e.g. online chats) among Hungarians. To boost demand, the government launched two imitative affecting retail prices. On one hand a preferential VAT to broadband subscriptions. Second a digital welfare basic tariff, with a reduced price of 10-15% price discount for non-users (European Commission, 2018). As a result, the total number of mobile subscriptions is expected to continue growing from 12.5m in 2018 to 13.0m in 2028. In 2017, the government established a 5G coalition with an objective to promote a rapid growth within the country. The auction for 5G started in 2019, nevertheless Digi has not met all the requirements and will not be able to take place in it. However, Digi mobile operations in Hungary are too small to be affected by the lack of involvement in the 5G race.

Pay TV continues to play an important role on the Hungarian market. In fact, more than 90% of households have access to pay TV, most of them through a bundled offer. Hungarians use mostly Cable TV access, which reached a 47% penetration, compared to a less popular offer of DTH (European Commission, 2018). Digi acquired Invitel and with its subscriber base of Cable TV (3% of market share in 2017), having a positive effect on its market position. After UPC Hungary, Digi is the leading player for Cable TV and is expected to continue increasing its subscriber base until 2023 when the market is expected to reach its plateau. On the other hand, DTH is on a steep decline in Hungary as the total DTH market experienced a 5% decline year on year in the period 2015-2018.



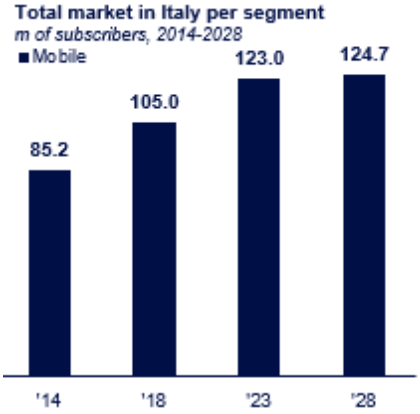
Spain

In Spain 4G coverage is above the EU average at 92% households. This is the role of operators that carried important investments in deployment. There is a total of 4 MNOs and 22 MVNOs (representing 9% of the total market). MVNOs are losing in market share due to acquisitions by MNOs (European Commission, 2019). In Spain, there are were a total of 65.4m mobile subscriptions in 2018 and are expected to reach 74.1m subscriptions in 2028. Digi Communications reached 1,128k subscribers in 2018, obtaining a significant market position after

the 4 MNOs. Digi Communication mobile division in Spain does not use its own infrastructure but the 4G and fixed network of Movistar. MasMovil and Digi Mobil are leading the mobile portability market in terms of net new adds and their potential. Both companies have attracted customers at the expense of large MNOs which lost in market shares in 2019 (Telecompaper 2020). The band 1.5GHz has been dedicated for 5G, the auction took place in 2018. Vodafone dominated the bidding followed by Telefonica Spain (Movistar) (Commsupdate 2018). The reorganization of the band 3.4 - 3.8GHz, known as the heart of Europe, is planned in the National Plan for 5G (2018 - 2020). Vodafone started commercializing 5G in 2019, by offering a network connection with speeds of up to 1Gbit/s in 15 Spanish cities. The network is using 3.7GHz band and can reach 50% coverage in each city (European Commission 2019). Although, Digi did not participate directly in the 5G auction, it will profit from the 5G deployment as it uses Movistar network.

Fixed internet and data in Spain have soared from 3.9m subscribers in 2014 to 11.8m subscribers in 2018. The take-up rates on fixed internet are expected to reach 88% in 2024. As of 2018, Spain had a 98% FTTH/B coverage with 17.6m homes passed and high FTTH take-up of 44%, translating into 7.9m subscribers (Montagne 2018). All the four MNOs in Spain also offer fixed internet services. Digi has entered the fixed internet and data segment in Spain only in 2018. Digi acts as a FTTH wholesaler using Movistar infrastructure and was able to attract 321k customers in its first year of operations. As Digi has a strong brand recognition in the Spanish mobile market and uses the large FTTH infrastructure of the incumbent Movistar, it is expected that it will grow rapidly in the upcoming year.

Italy



Italian mobile market has a very high penetration reaching 191% in 2018. In simple words, excluding old and young population, every Italian has more than two phones on average. Total mobile subscriptions are expected to increase from 105m in 2018 to 124.7m in 2028. The market is composed of a total of 4 MNOs and 19 MVNOs. There has been a recent merger between Wind and H3G. With this merger, the new brand became the largest Italian mobile operator ahead of TIM and Vodafone (European Commission, 2018). Digi operates in Italy on TIM network for the Romanian population. Since 2014, Digi's customer base has gradually increased from 51k to 197k in 2018. In 2019, DigiMobil Italy launched 4G coverage and will upgrade all its subscribers free of charge (Telecompaper, 2019), which will impact positively its growth in the upcoming years. In 2018, there has been a sale of spectrum to the French group Iliad

(known as Three) creating a fifth MNO in Italy. In 2018, the regulator AGCOM updated the National Frequency Allocation plan setting the rules for 700MHz, 3.6-3.8GHz and 26.5-27.5GHz for 5G projects. All the three auctions took place in 2018 with Vodafone, Telecom Italia and Iliad being the largest participants. Digi is not expected to have any upside or downside related to 5G due to its marginal size.

Financials

Past Performance

Before moving to a frontward consideration comprising forecasts, it is important to apprehend the historical performance of the company. Therefore, we dissected past analysis into ratios on activity, liquidity, firm structure and return.

Concerning activity ratios, as of 31st December 2018:

- On average, Digi's inventories remained in the company for 19 days. The holding period decreased from 24 days in 2016, prevenient from both a decrease in the number of inventories (18,552,000 in 2016 to 16,586,000 in 2018) and an increase in the cost of goods sold (€283,689,000 in 2016 to €321,704,000 in 2018). This descendent behaviour is positive for Digi since it translates less pressure on its liquidity;
- On average, Digi took 21 days to collect sales from its clients. The collection period decreased in this period, registering 47 days in 2016. The decline was caused by the fluctuation in receivables, which was netted by the fluctuation in payables and inventories. As main reasons for these variations are the acquisition of Invitel, the overall expansion of both the company's operations both in receivables and payables, the recognition from revenues from postponed green certificates and an increase in deferred revenues;
- On average, Digi took 524 days to settle up with its suppliers. The payable period was very high in comparison with the two above mentioned, which is a very positive output meaning that the company has very low pressure regarding liquidity, confirming the behaviour of the other activity ratios;
- As a result, Digi took on average 484 days to perform its regular trade cycle. The Cash Conversion Cycle ratio appears to be negative during 2016 to 2018, which means that the cash flows are generated faster, to

support the company's needs, and that suppliers are essentially financing the operational activity of the company. In accordance, Digi recognizes its reliance on suppliers as a risk driver for delays in roll out plans.

Concerning liquidity ratios, as of 31st December 2018:

- Digi was able to meet 0.31 (31%) of its shot term obligations with all of its short-term assets, worthing €202,128,000. The current ratio has been increasing over the years, but always remaining below 1. This strongly suggests that Digi might have cash flow issues in a near future. Yet, as we will be able to identify through our cash flow forecasts, the current ratio may hinge on the company's ability to execute its current assets. Therefore, there may be execution risk involved;
- Digi was able to meet 28% of its short-term obligations using its short term assets, assuming the company is unable to sell any inventories. Since taking this assumption, we can confirm that the company is unable to execute its inventories by the small difference between the current and quick ratios, for the period of 2016-2018;
- Digi was able to cover only 1% of its current liabilities with the cash available, remaining constant over the entire historical period studied;
- The Net Working Capital showed to be negative and with a downhill direction, meaning that in a space of a year, the company is not able to fulfil its liabilities with their assets. This can be justified by the investments in new opportunities such as the acquisition of Invitel and the fibre-optic network, which required a significant cash outlay and ultimately led to the high levels of debt.

Concerning capital structure ratios, as of 31st December 2018:

- The gearing ratio is very high (85%), which means that the company finances its operation mostly with long-term debt;
- D/E ratio shows that debt is 3 times higher than equity. Digi is the telecommunications company with the highest level of debt in comparison with its Central and Eastern Europe peers;
- The D/EBITDA ratio has been constant (2.6 in 2016 and 2.64 in 2018), which means the level of debt and earning was kept steady;
- At last, the solvency and financial autonomy ratios presented a positive evolution and with an average of 8.6% and 7.82%, respectively.

- Another key indicator for Digi is the EBITDA, that grew by almost 13% in 2018, and the adjusted EBITDA margin, of 31.3%.

Breakdown of Revenues

As we have stated in the company's description, Digi's revenue stream comes from its five business lines within its four geographies. To move from the past to actual forecast, we built a revenue forecasting model by deconstructing the value creation of the company by driver, linked to the operational performance of the company. Overall, revenues are a product of RGUs and ARPU. As for the first variable, the key value drivers are households/population, penetration rate and market share. The second variable is only driven by inflation.

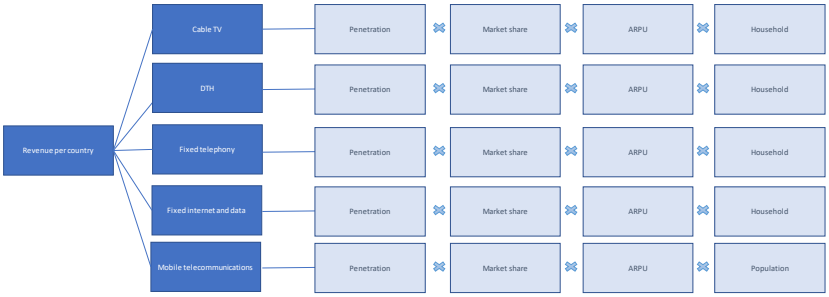
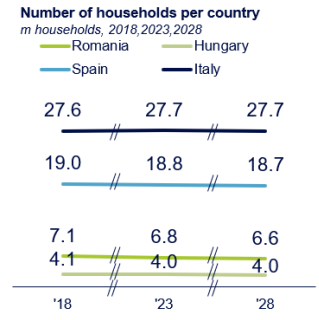
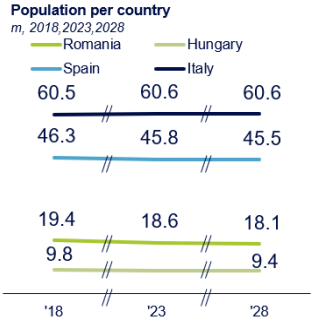


Table 2. Digi Revenue driver tree

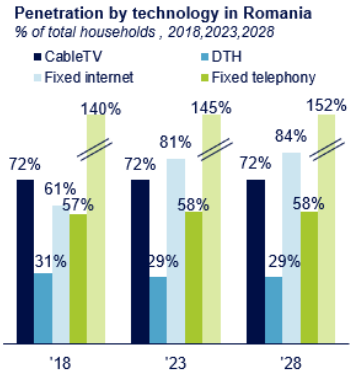
Households/Population

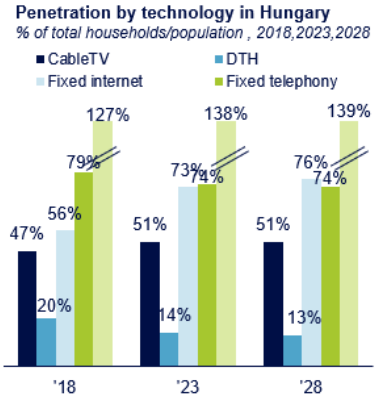




In nearly all telecommunications, the number of households is a relevant driver as services are provided and bought per house. However, when we think of mobile offers, services are targeted per mobile device, thus, per user. In this case, we use population as the demographic driver. For each of the countries where Digi operates, we extracted the household and population figures from the World Economic Outlook 2019.

For population, the data illustrates an official forecast from the IMF until 2024, thereafter we extrapolate using the CAGR (2016-2024). For households, we used the historical data until 2018 from EuroMonitor International 2019 report. As there is no forecast, we drive the household by multiplying the population by the average household size (2.7) in 2018 for each country, that we assume to stay constant during the forecasted period.





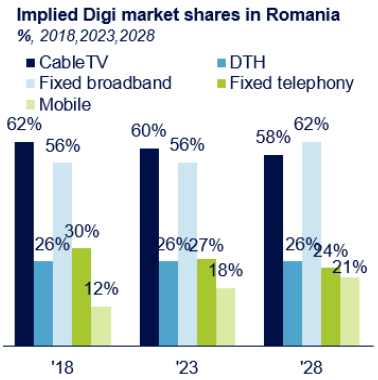
Penetration

Penetration is a very important metric in telecommunications, as it grasps the percentage of a target that a product or service reaches. We used Dataxis, a market research firm specialized in TMT, for all the penetration rates across the five different lines and the respective geographies. To put in words, the penetration in Romania for fixed internet and data is 56%, meaning that the fixed internet line connects 56% of households in Romania. We use the forecast of penetration that has been forecasted by Dataxis across the period 2019-2024 and we extrapolate it further. Unfortunately, as the data on the penetration of fixed telephony is not feasible to retrieve, we use as a proxy the penetration rates for fixed internet and data. The logic is that the usual telecom customers are likely to take a fixed phone with their internet service in a bund.

Inflation

In order to properly value the company, we account for inflation by including it in the ARPU forecast. We chose to include it directly in the forecast and discount cash flows with a nominal WACC for practical reasons. As our forecasts are denominated in euros, we have decided to use the Eurozone inflation across all four geographies. We used the data from the European Central Bank that forecasts inflation until 2028. Inflation rates go from 1% in 2019 up to 1.3% in 2028, which we accounted in the ARPU calculation we simply forecast by adding these rates for every year.

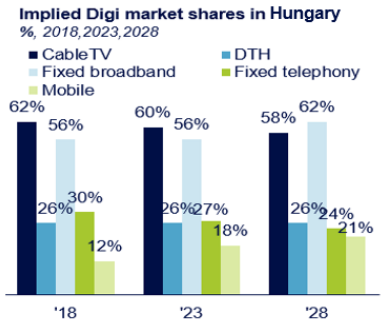
RGU and market share development



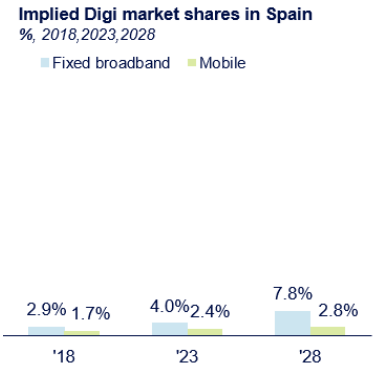
In Romania, cable TV market reached a plateau and is expected to decrease from 5.0m subscribers to 4.8m subscribers. Orange Romania entered the market in 2016 and reached 143k subscribers in 2018. We assume Orange could double its subscriber base in the next 5 years and triple it in the next 10 years. Consequently, Digi is expected to decrease with the remaining market from a current 3.2m subscribers in 2018 to 2.8m subscribers in 2028. DTH market has been decreasing since 2014 and there are no expected market consolidations, thus Digi subscribers are expected to decrease with the market at -1% per year. In the fixed and internet segment, Digi had an average of 141k net adds per year. As Digi is developing its FTTH network nationwide in Romania, we expect that historical growth of 141k net adds to continue in the period 2019 – 2023 and halve to 71k in the period 2024-2028. Digi has experienced a more significant decrease in RGUs on the fixed telephony than the market overall. Thus, we believe Digi Romania will continue decreasing at -3% in 2019 - 2023 and -1.5% in 2024 - 2028. Finally, Digi is a large player in the mobile telecommunications

submarket and has plans to develop 5G in Romania. We believe it will grow at its historical average of 321k in 2019 - 2023 and 161k in 2024 - 2028.

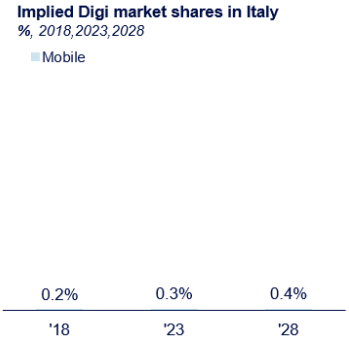
In Hungary, cable TV, DTH, fixed telephony and mobile markets will experience very little or negative growths in the forecast period 2019 - 2028. Thus, we believe Digi Hungary number of RGUs to move with the market in these business lines. As a result, Cable TV subscribers are expected to increase from 0.6m to 0.6m, DTH subscribers to decrease from 0.3m to 0.2m, fixed telephony to decrease from 0.6m to 0.5m, and mobile subscribers to increase from 14k subscribers to 15k in the period 2019 - 2028. In the fixed internet and data market, we expect Telekom Hungary and UPC Hungary to continue growing at its historical growths, while the rest of operators (including Digi Hungary) to move with the market. In fact, Telekom Hungary has been granted significant subsidies to develop FTTH in white areas, while UPC Hungary has announced to develop its own FTTH infrastructure. As a result, Digi Hungary subscribers are expected to decrease from 0.7m in 2018 to 0.6 in 2028.



In Spain, Digi has performed surprisingly well and is expected to grow at its historical growth of 127k net adds in 2019 - 2023 and 64k in 2024 - 2028. In fact, Digi and Masmovil are experiencing high growths at the expense of large MNOs. For instance, in 2019 only Digi and Masmovil took 900k customers from its rivals (Telecompaper 2020) Thus, Digi Spain subscribers are expected to increase from 1.1m in 2018 to 2.1m in 2028. On the fixed internet and data side, Digi Mobil started offering FTTH services as a wholesaler via Movistar's FTTH network (incumbent in Spain) and achieved 321k in its first year of operations. Thus, Digi is assumed to achieve twice its RGU size until 2023 and four times its RGU size until 2028. As a result, Digi fixed customers are expected to increase from 0.3m in 2018 to 1.3m in 2028.



In Italy, Digi is offering mobile services through TIM network. Digi has achieved a net adds average growth of 37k net adds per year. Digi targets the large Romanian population in Italy and it recently announced to move all its existing customers free of charge to the 4G TIM network (Telecompaper 2019). Thus, we believe the network will continue to grow at 37k until 2023 and 17k in the period 2024 - 2028.



Valuation

Our valuation generates a target share price of €10.28 through the Discounted cash flow method, which we complemented by performing a multiples analysis, yielding a price of €16.49. Let us now examine each of these methods separately.

Multiples

Peer group selection

To ensure accuracy in our valuation through multiples, the choice of Digi's comparables relied mostly on two main criteria: Capital structure, including market capitalization and level of debt, and credit profile. Digi has one of the highest D/E ratios within the telecommunications industry, compared to other big players who often register no debt. Due to this fact, our priority was to choose companies where the capital structure could be comparable to ours. As a result, our peer group while using the Standard Industrial Classification (SIC) codes, is constituted by Kazakhtelecom, GlobalStar INC, Partner Communication, Smartone Telecommunications, Telia Lietuva, Hengxin Shambala Culture, H&R Century Union, Ooredoo and Vodacom Tanzania. The credit profile of these companies are very similar with most of them belonging to the B class, except of Ooredoo.

These and other criteria can be seen in the following table.

Peer group criteria	Market Cap (m)	Beta levered	Beta unlevered	D/EV
Kazakhtelecom	€822,00	0,72	0,61	0,72
GlobalStar INC	€808,16	1,32	1,23	0,38
Partner Communication	€659,06	1,57	1,70	0,33
Smartone Telecommunications	€942,98	0,9	1,16	0,33
Telia Lietuva AB	€643,79	0,39	0,38	0,22
Hengxin Shambala Culture	€598,43	0,61	0,99	0,23
H&R Century Union Corp-A	€592,78	1	0,88	0,12
Ooredoo	€838,59	1,07	0,98	0,09
Vodacom Tanzania	€621,07	1,28	1,26	0,03

Table 3. Peer group criteria

Computing the multiples

For valuation purposes, we used EUR as our currency base. Having already used Bloomberg's terminal to extract the capital structure, we additionally took data for the metrics EBITA, Sales and EBITDA.

Thus, we decided to compute the EV/EBITA multiple, since it tells more about a company's value than any other multiple, EV/Sales and EV/EBITDA. Table 3 summarizes the comparable companies and their trading multiples.

Multiples	EV/EBITA	EV/Sales	EV/EBITDA
Digi Communications NV	**6,43**	**1,18**	**3,64**
Kazakhtelecom	12,22	2,22	6,19
GlobalStar INC	-36,56	10,88	42,36
Partner Communication	10,46	1,15	5,74
Smartone Telecommunications	7,92	1,04	0,98
Telia Lietuva AB	10,51	2,14	6,32
Hengxin Shambala Culture	49,27	6,62	31,64
H&R Century Union Corp-A	12,52	3,45	12,43
Ooredoo	5,80	1,22	3,00
Vodacom Tanzania	11,86	1,25	4,31

Table 4. Overview of multiples from peer group

Computing the share price I

The next step was to determine the implied enterprise value, which was done by computing a median of each of the multiples and multiplying it by the correspondent metric for Digi (e.g. average EV/EBITA * EBITA Digi). This way, we were able to compute the market value of equity for each of the multiples (e.g. Implied EV of each multiple - Digi's Net Debt), which when divided by the number of outstanding shares from Digi, we got the implied price per share per multiple.

Finally, we computed the average of the multiples which brought us to an overall price per share of €16.46, as we can see in Table 4 It is then possible to conclude that the market is undervaluing Digi's shares ($target\ price > current\ price \rightarrow €16.45 > €6.98$).

Multiple		Metric (m)	Implied EV (m)	MV Equity (m)	Implied Price per Share
EV/EBITA	10,49	€189,80	€1 990,21	€1 119,19	€17,63
EV/Sales	1,69	€1 038,12	€1 758,40	€887,39	€13,97
EV/EBITDA	5,96	€335,46	€2 000,00	€1 128,98	€17,78
Average					**€16,46**

Table 5. Share price from relative valuation

Discounted Cash Flows

To compute the enterprise value, we discounted the free cash flows of Digi – meaning the cash flow available to all investors – at the weighted average cost of capital (WACC). When achieved, the enterprise value was used to get to equity, by subtracting Digi's net debt for 2018. The share price ultimately results from the quotient between the equity value and the company's outstanding shares.

Calculating WACC

Achieving the WACC level required the previous calculations of beta equity and beta debt. We calculated beta equity through two different approaches: regression model and using the industry's comparables. For the empirical estimation of beta, we retrieved Digi's returns, the returns of a 10-year German government bond, as a proxy for the risk-free rate, and the returns of the MSCI world index, as a proxy for the market risk. For all entries we exported weekly data from Bloomberg from the period from June 2017 (Digi's IPO) to December 31st of 2018. This way, we were able to ensure at least 60 data points in our raw regression (2x48=96 data points). By having Digi's excess returns and the excess returns of the market, our regression model enabled us to achieve a raw beta of 0.42 with a 95% confidence interval.

However, estimating beta by using the company's comparables, is much more reliable. This method goes as follows: 1) Using the raw betas for Digi and each of its peers; 2) Unlevering these betas; 3) Computing the average of the already unlevered betas.

In step 1), we retrieved from Bloomberg the raw betas of Digi and its peers against the MSCI World Index, using the same period as before. The raw beta for Digi was of 0.72, which lies within the 95% confidence interval of 0.08 to 0.76 (calculated in the previous method).

Step 2) requires the use of the following formula:

$(ii)\ \beta u = (\beta d \times \frac{D}{EV}) + (raw\ beta \times \frac{E}{EV})$, where the weights of debt and equity are the actual weights for each company.

The last entry to estimate was beta debt, which by itself required the following methodology:

$(iii)\ \beta d = (r_d - r_f)/r_m$, where risk-free is the current return of a 10-year German government bond of -0.1%, market risk is 5.5%, according to McKinsey's model, and

$(iv)\ r_d = ytm - annual\ prob.default\ (1 \times recovery\ rate)$.

Using Moody's report on corporate default and recovery rates, we were able to identify the probability of default for Digi, 28.453%, given a maturity of 7 years and credit rating of B1. The same logic was applied to all comparables, excluding Hengxin Shambala Culture, H&R Century Union Corp-A and Vodacom Tanzania, since these companies registered low levels of debt and no bond rating is reported (debt might be in the form of loans). Additionally, for Digi and the remaining comparables, we assigned a recovery rate of 49.5% taking into consideration the lien position and the issuer-weighted date. Using formula (ii) we got to the unlevered betas and proceeded to step 3), giving a beta of 1.02. After this, we relevered the beta using Digi's target capital structure (D/EV=19%, E/EV=81%), obtaining a beta equity of 1.13. In this case, we assumed the target capital structure to be the result of the average debt and equity weights of the comparables. This assumption annuls the effect of the D/EV ratio in Digi, which is currently very high (71.7%). We believe the company's debt levels can be explained by the recent acquisition of Invitel's fiber network.

We were then able to apply the CAPM to calculate the real cost of equity: $r_e = -0.1\% + 1.13\,(5.5\% + 0.1\%) = 6.1\%$ which gives us a WACC of 5.4% (using once again the target capital structure and a tax rate of 16%).

Calculating growth

The growth is a function of the investment rate and the RONIC. We have decided to use RONIC since we were more interested in looking at more recent investments and seeing what growth rate they entail. The RONIC for our target company is at 3.8% in 2020 and is expected to increase over the forecasted period by approximately 82%. This reflects Digi's possible investments in the future, that are in accordance with the evolution of the telecom industry characterized by the emergence of disruption technologies like fibre and 5G. For instance, if we would have used ROIC instead of RONIC, the conclusion would be completely opposite and misleading. However, the overall investment rate decreases during the period, since the number of net adds concerning RGUs starts slowing down in 2023, impacting directly the investment allocation decision for Digi.

Consequently, Digi's growth rate in 2020 is 5.3% and fully stabilizes in 2028 to a rate of 2.6%, which is the reason why this is the end period of our forecasting analysis. Additionally, the real growth rate for 2020 is 1.3%, after deducting inflation for this year. As the RONIC is higher that the WACC ($7\% > 5.4\%$) the company is creating value.

Calculating the share price II

With WACC and growth calculated, the free cash flows were discounted at 5.4% and the perpetuity formula applies, reaching to an enterprise value of €1,524,082,000 in 2018. Given that net debt for this year was €871,018,000, the resulting equity value was €653,064,000 that when divided by 63.5 million shares yield the target share price of €10.28. Once again, the conclusion of Digi's shared being undervalued applies ($target\ price > current\ price \rightarrow €10.28 > €6.98$).

As we can see, the share price obtained through both methods leads to the same investment decision, which is to Buy. According to McKinsey & Company, DCF is the most accurate and flexible method to valuate companies and projects. For this reason, we performed a summary analysis of the target share price by giving a weight of 95% to DCF and 5% to the multiples. This allocation yields a final target price of €10.55. The arbitrage opportunity resulting from this decision is:

$$(63.5m\ shares \times €10.55) - (63.5m\ shares \times €6.98) = €226,429,304$$

Sensitivity analysis

To understand how the value of Digi Communications is impacted by changes in the levels of growth or WACC, we performed a sensitivity analysis. In accordance, we assume a change in the values of 0.05%, upwards and downwards.

Based on the sensitivity analysis, we can see that the share price increases as WACC moves down and growth moves up. For this reason, the maximum value the share price can be is €12.91 when WACC is at its lowest (5.29%) and growth is at its highest (5.59%). Opposability, the minimum share price is of €8.04, when WACC is at its highest (5.59%) and growth at its lowest (2.29%).

Opportunities and Threats

Opportunities

Develop an OTT service

Digi communications is in the fast connectivity network, which is required for the reliability of over-the-top (OTT) media services. There is a worldwide trend of a decreasing average time spent watching traditional television making traditional

TV (cable TV, DTH) less popular. On the other hand, there is a growing popularity both in terms of availability and time spent on OTT services such as SVOD or TVOD. It is particularly true in countries that have high coverage of next generation access (NGA) internet such as Romania. As a result, total OTT revenues are expected to increase from €76m in 2018 to €192m in 2023, which implies a CAGR of 20% (Murray, 2017). Digi is well positioned to start an SVOD or TVOD service. On one hand, it has been spending a significant amount for programming gaining more movies and series rights. On the other hand, Digi Communications has just acquired Invitel, a company that has experience in the Digital TV market. Finally, the demographics in Romania are right due to the high coverage of FTTH enabling OTT development. We estimated Digi could profit form additional €3.1m - €57.9m in the period 2019 - 2028 or a cumulative revenue of €291.4m. We assumed that the revenues for OTT will continue are growing at 20% per year. For each of the years we extracted forecasted revenues of Netflix, which has a large weight in OTT revenues. Finally, we assumed a fair market share between 6 large cable TV players in 2023.

Develop a dedicated P2P service for tower sites in Romania

Digi communications is a company that operates both in the fixed and mobile broadband market, which can be opportunistic for our target company. There is a phenomenon of fixed and mobile conversion, which refers to the trend of connectivity between fixed and wireless broadband connection. With the arrival of 5G services, this convergence may become even stronger and Digi if well positioned can profit from it. In fact, in order to provide an FTTH-comparable service, 5G will need network densification which is in the range of 10x (Getta, 2019). Increasing data traffic in dense urban areas requires more capacity. In order to support that capacity, fibre infrastructure can provision the connectivity between towers. Romania is one of the most developed countries in terms of 5G development in the European Union as the commercialisation started in 2019 with Orange offering its services in three different cities. Since, Digi has a large infrastructure of FTTH in Romania it can offer a P2P service in the form of Fibre-to-the-Tower (FTTT). A dedicated fibre service provides high-speed, high-connectivity service with high service level agreements to ensure transmission. Mobile backhaul offers enable MNOs to have a dedicated line to connect towers, which significantly increases the potential capacity. Fibre operators by offering a mix of additional services with a P2P solution charge a high premium resulting in a higher ARPU. Digi could benefit of revenues ranging between €16.1m-€17.9m in the period 2019-2020, and a cumulative additional revenue of €170.6m in the period. In 2018, there were 2,099 cells in Romania (Radiocells, 2020). We assume that 5G will require a 10x densification of cells, a fair share among all

four large Romanian fibre operators, and that 10% of cells will be connected to fibre rather than wavelengths (Getta, 2019). Finally, we assumed that the ARPU for FTTT service is equal to the FTTE ARPU, which was €28.0/month for Digi in 2018.

Develop synergies with Invitel in Hungary

Digi Communications acquired Invitel in May 2018. Invitel is a company that is operating in three segments – Digital TV, fixed internet, fixed telephony. It is expected that Digi can profit from synergies both in terms of revenues and costs. From a revenue perspective, Invitel does not have a mobile offer and can offer Digi's service in one its bundled offers. This could decrease the potential churn due to an incomplete offer. Similarly, Digi can profit from an increased perimeter of fixed internet as Invitel has an extensive cable internet network. From a cost perspective, both companies can reduce their costs by sharing infrastructure, which will reduce the largest costs relative to revenues. Also, to reduce costs both companies can optimize SG&A costs by downsizing redundant positions. However, due to the small size of Invitel we did not quantify the benefits of potential synergies.

Threats

Threat of missing out on 5G – worst case scenario analysis

There is a large 5G excitement in Romania, as all MNOs have performed first 5G tests and are expected to take place in the auction in 2020. Orange Romania is a player that is in the Romanian telecom market since 1992, however recent strategic actions place it as a threat to Digi Communications. In fact, except for fixed telephony Orange is competing in all the segments that Digi is operating. Most importantly, Orange was able to increase its market shares in nearly all segments. On the mobile broadband side Orange is the largest MNO in Romania and was the first player to commercialize 5G offer in three Romanian cities in 2019. Thus, there is a threat of Digi customers churning to Orange Romania. In a worst case, scenario analysis we assumed that Orange will roll-out 5G successfully and achieve its historical growth rate (average of 321k net adds per year). Meanwhile, we assumed all other players, including Digi, would grow with the market. This would result in a loss of revenues in the range of €19.6m - €157.3m in the period 2019 - 2028 or a cumulative loss of €938m in the period.

Spain mobile market is more advanced in terms of 5G roll-out as the auction took place in 2018 and Vodafone offers 5G in 15 large Spanish cities. In the auction of

2018, Vodafone overbid all the other players followed by Orange and Telefonica. Digi does not have its own infrastructure but uses the 4G network of Movistar (Telefonica). In a worst-case scenario, we assume that Digi would not be able to use 5G network of Movistar and would miss out on the 5G opportunity. If all 5G operators would continue growing at the same pace, and the rest growing with the market, Digi would lose revenues in the range of €10.2m - €12.6 in 2019 - 2028 or a cumulative loss of €591.3 in the period.

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Appendix

Sector

All number in k of subs	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Romania															
Cable TV subs	4,489	4,627	4,609	4,841	5,077	5,045	5,007	4,973	4,938	4,902	4,887	4,855	4,823	4,791	4,760
yoy growth		*3.0%*	*-0.4%*	*4.9%*	*4.8%*	*-0.6%*	*-0.8%*	*-0.7%*	*-0.7%*	*-0.7%*	*-0.3%*	*-0.7%*	*-0.7%*	*-0.7%*	*-0.7%*
DTH subs	2,330	2,422	2,372	2,275	2,185	2,129	2,095	2,067	2,038	2,003	1,989	1,976	1,963	1,950	1,937
yoy growth		*3.9%*	*-2.1%*	*-4.2%*	*-4.0%*	*-2.6%*	*-1.6%*	*-1.3%*	*-1.4%*	*-1.7%*	*-0.7%*	*-0.7%*	*-0.7%*	*-0.7%*	*-0.7%*
Fixed internet and data subs	2,772	3,200	3,540	3,869	4,293	4,642	4,937	5,161	5,346	5,535	5,681	5,644	5,607	5,570	5,534
yoy growth		*14.4%*	*10.1%*	*8.9%*	*10.4%*	*7.8%*	*6.2%*	*4.4%*	*3.5%*	*3.5%*	*2.6%*	*-0.7%*	*-0.7%*	*-0.7%*	*-0.7%*
Fixed telephony subs	4,442	4,393	4,052	4,042	4,023	4,007	3,991	3,975	3,959	3,943	3,920	3,895	3,869	3,844	3,819
yoy growth		*-1.1%*	*-8.1%*	*-0.2%*	*-0.5%*	*-0.4%*	*-0.4%*	*-0.4%*	*-0.4%*	*-0.4%*	*-0.6%*	*-0.7%*	*-0.7%*	*-0.7%*	*-0.7%*
Mobile telecommunicaiton subs	26,721	27,288	27,602	27,792	28,200	28,079	28,190	28,279	28,241	28,196	28,367	28,181	27,997	27,813	27,631
yoy growth		*2.1%*	*1.1%*	*0.7%*	*1.5%*	*-0.4%*	*0.4%*	*0.3%*	*-0.1%*	*-0.2%*	*0.6%*	*-0.7%*	*-0.7%*	*-0.7%*	*-0.7%*
Hungary															
Cable TV subs	1,566	1,883	1,878	1,928	1,950	1,975	2,037	2,049	2,061	2,063	2,053	2,046	2,039	2,032	2,026
yoy growth		*18.4%*	*-0.3%*	*2.6%*	*1.2%*	*1.3%*	*3.1%*	*0.6%*	*0.6%*	*0.1%*	*-0.5%*	*-0.3%*	*-0.3%*	*-0.3%*	*-0.3%*
DTH subs	933	929	893	848	808	769	709	657	610	566	523	522	520	518	516
yoy growth		*-0.4%*	*-3.9%*	*-5.2%*	*-4.9%*	*-4.9%*	*-8.2%*	*-7.6%*	*-7.5%*	*-7.4%*	*-7.9%*	*-0.3%*	*-0.3%*	*-0.3%*	*-0.3%*
Fixed internet and data subs	1,665	1,826	1,988	2,166	2,254	2,466	2,610	2,730	2,851	2,965	3,075	3,065	3,055	3,044	3,034
yoy growth		*9.2%*	*8.5%*	*8.6%*	*4.0%*	*9.0%*	*5.7%*	*4.5%*	*4.3%*	*3.9%*	*3.6%*	*-0.3%*	*-0.3%*	*-0.3%*	*-0.3%*
Fixed telephony subs	2,921	2,830	3,249	3,258	3,257	3,114	3,086	3,058	3,031	3,004	2,963	2,953	2,943	2,933	2,924
yoy growth		*-3.2%*	*13.8%*	*0.3%*	*0.0%*	*-4.5%*	*-0.9%*	*-0.9%*	*-0.9%*	*-0.9%*	*-1.4%*	*-0.3%*	*-0.3%*	*-0.3%*	*-0.3%*
Mobile telecommunication subs	10,919	10,987	12,208	12,237	12,453	12,864	12,921	13,030	13,148	13,227	13,213	13,169	13,125	13,082	13,038
yoy growth		*0.6%*	*10.5%*	*0.2%*	*1.7%*	*3.2%*	*0.4%*	*0.8%*	*0.9%*	*0.6%*	*-0.1%*	*-0.3%*	*-0.3%*	*-0.3%*	*-0.3%*
Spain															
Fixed internet and data subs	3,839	5,566	7,462	9,242	11,103	12,776	14,277	15,181	15,776	16,135	16,506	16,480	16,455	16,430	16,404
yoy growth		*37.1%*	*29.3%*	*21.4%*	*18.3%*	*14.0%*	*11.1%*	*6.1%*	*3.8%*	*2.3%*	*2.3%*	*-0.2%*	*-0.2%*	*-0.2%*	*-0.2%*
Mobile telecommunication subs	55,822	56,268	55,914	57,305	65,412	66,835	68,376	69,927	71,486	73,046	74,617	74,502	74,386	74,271	74,156
yoy growth		*0.8%*	*-0.6%*	*2.5%*	*13.2%*	*2.2%*	*2.3%*	*2.2%*	*2.2%*	*2.2%*	*2.1%*	*-0.2%*	*-0.2%*	*-0.2%*	*-0.2%*
Italy															
Mobile telecommunication															
Mobile telecommunication subs	85,193	93,215	99,155	101,908	104,987	115,994	117,757	119,515	121,269	123,021	124,768	124,753	124,739	124,724	124,709
		9.0%	*6.2%*	*2.7%*	*3.0%*	*10.0%*	*1.5%*	*1.5%*	*1.5%*	*1.4%*	*1.4%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*

Financials

| Ratio Analysis

| Activity Ratios

559066

(in # of days)	2016	2017	2018	Average
Average holding period	23.87	12.84	18.82	18.51
Average collection period	47.19	32.84	21.10	33.71
Average payable period	481.16	456.96	523.57	
Cash Conversion Cycle				

| Liquidity Ratios

(in millions)	2016	2017	2018	Average
Current Ratio	44.10%	38.47%	30.53%	37.70%
Quick Ratio	39.98%	36.31%	28.03%	34.77%
Cash Ratio	1.22%	1.34%	0.93%	1.17%
Net Working Capital	-998,246	-1,021,167	-1,277,399	-1,098,937

| Capital Structure Ratios

	2016	2017	2018	Average
Gearing ratio	0.94	0.84	0.85	0.88
D/E	8.62	2.67	3.03	4.77
Debt/EBITDA	2.60	2.46	2.64	2.57
Solvency Ratio	3.56%	11.88%	10.36%	8.60%
Financial Autonomy Ratio	3.44%	10.62%	9.39%	7.82%

| Profitability from Operations

	2016	2017	2018	Average
Gross Margin	66%	69%	69%	68%
EBITDA Margin	32.39%	32.39%	32.31%	32%
EBIT Margin	9.41%	12.59%	9.82%	11%
Net Margin	1.40%	6.77%	1.74%	3%

| Profitability from Investments

	2016	2017	2018	Average
ROA	6.39%	8.60%	6.25%	7.08%
Asset Turnover	112.04%	105.04%	100.00%	105.69%
Fixed Assed Turnover	102.03%	101.76%	91.14%	98.31%
ROIC	0.09%	7.03%	0.36%	2.44%
Core ROIC	7.45%	11.44%	7.07%	8.65%
Core Operational Margin	6.63%	10.05%	6.63%	7.77%
Core Asset Turnover	112.29%	113.87%	106.70%	110.95%
Non Core ROIC	1606%	24%	-18%	537.38%
RONIC	-	-	37.46%	-

Figure 1. Digi Ratios overview

Drivers

All number in thousands of subscribers	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Romania															
Cable TV															
Digi Romania	2,599	2,733	2,815	2,923	3,165	3,127	3,083	3,044	3,003	2,961	2,933	2,894	2,856	2,817	2,779
DTH															
DigiRomania	725	674	658	614	565	551	542	535	527	518	515	511	508	505	501
Fixed internet and data															
DigiRomania	1,834	1,976	2,044	2,150	2,396	2,537	2,677	2,818	2,958	3,099	3,169	3,239	3,310	3,380	3,450
Fixed telephony															
DigiRomania	1,346	1,287	1,367	1,275	1,201	1,168	1,137	1,107	1,077	1,048	1,020	993	966	940	915
Mobile telecommunication															
DigiRomania	2,127	2,716	2,990	3,337	3,413	3,734	4,056	4,377	4,699	5,020	5,181	5,342	5,502	5,663	5,824
Hungary															
Cable TV															
Digi Hungary	411	437	453	483	605	613	632	636	640	640	637	635	633	631	629
DTH															
Digi Hungary	330	318	317	302	290	276	254	236	219	203	188	187	186	186	185
Fixed internet and data															
DigiHungary	347	382	403	446	628	705	737	755	772	785	795	752	712	674	637
Fixed telephony															
DigiRomania	301	327	331	374	578	553	548	543	538	533	526	524	522	520	519
Mobile telecommunication															
DigiHungary	19	16	15	13	14	15	15	15	15	15	15	15	15	15	15
Spain															
Fixed internet and data															
Digi			-	-	321	385	449	514	578	642	770	899	1,027	1,156	1,284
Mobile telecommunication		125	- 141	140	384										
DigiMobil	610	735	594	734	1,118	1,245	1,372	1,499	1,626	1,753	1,816	1,880	1,943	2,007	2,070
Italy															
Mobile telecommunication															
DigiMobiltalia	51	66	69	143	197	234	270	307	343	380	398	416	434	453	471

Figure 2. RGU development of Digi

(All values in '000 unless specified)	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Households													
Romania	7,101	7,087	7,070	7,027	6,983	6,936	6,886	6,837	6,787	6,743	6,699	6,655	6,611
Average houhold size (in units)	2.8	2.8	2.7										
Hungary	4,118	4,119	4,123	4,115	4,098	4,082	4,066	4,045	4,025	4,012	3,998	3,985	3,972
Average houhold size (in units)	2.4	2.4	2.4										
Spain	18,666	18,807	18,959	18,930	18,905	18,877	18,848	18,807	18,778	18,749	18,720	18,691	18,662
Average houhold size (in units)	2.5	2.5	2.4										
Italy	27,305	27,488	27,641	27,759	27,750	27,737	27,723	27,705	27,686	27,683	27,680	27,677	27,673
Average houhold size (in units)	2.2	2.2	2.2										
Population													
Romania	19,630	19,520	19,401	19,282	19,160	19,032	18,896	18,760	18,624	18,502	18,381	18,260	18,141
Hungary	9,798	9,778	9,773	9,753	9,714	9,676	9,637	9,589	9,541	9,509	9,478	9,446	9,415
Spain	46,400	46,330	46,270	46,200	46,140	46,070	46,000	45,900	45,829	45,758	45,687	45,617	45,546
Italy	60,670	60,590	60,480	60,740	60,720	60,690	60,660	60,620	60,580	60,573	60,566	60,559	60,551

Figure 3. Forecast of households and populations per country

(All values in '000 unless specified)	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Penetration													
Penetration in Romania (in % terms)													
Cable TV	64.90%	68.30%	71.80%	71.80%	71.70%	71.70%	71.70%	71.70%	72.00%	72.0%	72.0%	72.0%	72.0%
DTH	33.40%	32.10%	30.90%	30.30%	30.00%	29.80%	29.60%	29.30%	29.30%	29.3%	29.3%	29.3%	29.3%
Fixed internet and data	50%	55%	61%	66%	71%	74%	78%	81%	84%	83.7%	83.7%	83.7%	83.7%
Fixed telephony	57.06%	57.03%	56.90%	57.02%	57.15%	57.31%	57.49%	57.67%	57.76%	57.8%	57.8%	57.8%	57.8%
Mobile telecommunication	140.61%	142.38%	145.35%	145.63%	147.13%	148.59%	149.46%	150.30%	152.32%	152.3%	152.3%	152.3%	152.3%
Penetration in Hungary (in % terms)													
Cable TV	45.60%	46.80%	47.30%	48.00%	49.70%	50.20%	50.70%	51.00%	51.00%	51.0%	51.0%	51.0%	51.0%
DTH	21.70%	20.60%	19.60%	18.70%	17.30%	16.10%	15.00%	14.00%	13.00%	13.0%	13.0%	13.0%	13.0%
Fixed internet and data	48.28%	52.59%	55.66%	59.93%	63.67%	66.89%	70.11%	73.30%	76.39%	76.4%	76.4%	76.4%	76.4%
Fixed telephony	78.90%	79.10%	79.00%	75.68%	75.30%	74.93%	74.55%	74.25%	73.61%	73.6%	73.6%	73.6%	73.6%
Mobile telecommunication	124.19%	124.87%	127.33%	131.90%	133.01%	134.67%	136.43%	137.94%	138.49%	138.5%	138.5%	138.5%	138.5%
Penetration in Spain (in % terms)													
Fixed internet and data	30.02%	29.96%	29.71%	29.62%	29.49%	29.36%	29.24%	29.13%	29.01%	29.0%	29.0%	29.0%	29.0%
Fixed telephony	40.0%	49.1%	58.6%	67.5%	75.5%	80.4%	83.7%	85.8%	87.9%	87.9%	87.9%	87.9%	87.9%
Mobile telecommunication	121%	124%	141%	145%	148%	152%	155%	159%	163%	162.8%	162.8%	162.8%	162.8%
Penetration in Italy (in % terms)													
Fixed internet and data	57.66%	57.48%	57.31%	57.08%	56.85%	56.62%	56.39%	56.17%	55.96%	56.0%	56.0%	56.0%	56.0%
Fixed telephony	79.80%	79.54%	79.31%	78.99%	78.67%	78.36%	78.04%	77.73%	77.44%	77.4%	77.4%	77.4%	77.4%
Mobile telecommunication	163%	168%	174%	191%	194%	197%	200%	203%	206%	206.0%	206.0%	206.0%	206.0%

Figure 4. Penetration per technology and per country

(All values in '000 unless specified)	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Blended ARPU (in euros)													
Romania													
Romania													
Cable TV (in euros)	5.20	5.20	5.00	5.1	5.1	5.2	5.3	5.3	5.4	5.5	5.5	5.6	5.7
DTH (in euros)	4.90	4.90	4.80	4.8	4.9	5.0	5.1	5.1	5.2	5.3	5.3	5.4	5.5
Fixed internet and data (in euros)	6.67	6.65	6.25	6.3	6.4	6.5	6.6	6.7	6.8	6.8	6.9	7.0	7.1
Fixed telephony (in euros)	1.53	1.53	1.52	1.5	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.7
Mobile telecommunication (in euros)	3.40	4.10	4.40	4.4	4.5	4.6	4.6	4.7	4.8	4.8	4.9	4.9	5.0
Hungary													
Cable TV (in euros)	7.50	8.20	8.30	8.4	8.5	8.6	8.7	8.9	9.0	9.1	9.2	9.3	9.4
DTH (in euros)	8.20	9.20	9.10	9.2	9.3	9.4	9.6	9.7	9.8	10.0	10.1	10.2	10.3
Fixed internet and data (in euros)	7.80	7.60	7.60	7.7	7.8	7.9	8.0	8.1	8.2	8.3	8.4	8.5	8.6
Fixed telephony (in euros)	1.70	1.40	2.40	2.4	2.5	2.5	2.5	2.6	2.6	2.6	2.7	2.7	2.7
Mobile telecommunication (in euros)	6.80	7.10	5.90	6.0	6.0	6.1	6.2	6.3	6.4	6.5	6.5	6.6	6.7
Spain													
Fixed internet and data (in euros)			20.80	21.0	21.2	21.6	21.9	22.2	22.5	22.8	23.1	23.4	23.7
Mobile telecommunication (in euros)	11.60	10.50	9.40	9.5	9.6	9.7	9.9	10.0	10.2	10.3	10.4	10.6	10.7
Italy													
Mobile telecommunication (in euros)	10.90	10.60	9.60	9.7	9.8	9.9	10.1	10.2	10.4	10.5	10.6	10.8	10.9
Inflation				1.0%	1.2%	1.4%	1.6%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%

Figure 5. ARPU forecast

Forecasted Financial Statements

(All values in '000 euros unless specified)	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Core Business													
Total Operating Revenue	842,962	916,163	1,038,612	1,071,284	1,122,223	1,174,370	1,229,250	1,288,975	1,311,201	1,341,836	1,373,296	1,405,591	1,438,732
Romania	612,689	655,173	697,841	727,895	759,535	794,053	830,608	865,730	887,972	909,989	932,469	955,419	978,847
Cable TV Revenues	175,673	182,374	189,907	189,484	189,008	189,227	189,655	189,476	190,107	190,013	189,894	189,749	189,577
DTH Revenues	38,714	36,516	32,562	32,051	31,896	31,920	31,983	31,837	32,016	32,217	32,420	32,624	32,830
Fixed internet and Data	163,627	171,566	179,708	192,150	205,127	218,971	233,570	247,831	256,729	265,816	275,096	284,571	294,245
Fixed Telephony	25,100	23,400	21,900	21,526	21,189	20,915	20,680	20,386	20,096	19,810	19,528	19,250	18,976
Mobile telecommunications	122,000	164,200	180,200	199,145	218,776	239,481	261,182	282,661	295,485	308,594	321,992	335,685	349,679
Adjustments	7 -	81	24										
Hungary	137,157	150,036	191,394	197,640	202,027	204,422	207,211	208,952	209,956	207,784	205,732	203,797	201,977
Cable TV Revenues	40,751	47,508	60,293	61,673	64,333	65,643	67,088	68,016	68,552	69,208	69,871	70,540	71,215
DTH Revenues	31,192	33,379	31,626	30,414	28,347	26,650	25,125	23,635	22,120	22,331	22,545	22,761	22,979
Fixed internet and Data	37,730	40,698	58,307	64,939	68,678	71,354	74,085	76,304	78,288	75,080	71,983	68,993	66,107
Fixed Telephony	6,760	6,281	16,645	16,073	16,112	16,194	16,306	16,368	16,354	16,511	16,669	16,828	16,990
Mobile telecommunications	1,200	1,100	1,000	1,043	1,060	1,084	1,111	1,133	1,146	1,157	1,168	1,179	1,191
Adjustment	40 -	3	27										
Spain	83,037	92,691	126,587	118,492	128,794	139,217	149,739	159,578	163,683	171,530	179,553	187,755	196,139
Fixed internet and Data			321	1,603	1,612	1,626	1,643	1,654	1,666	1,685	1,704	1,723	1,743
Mobile telecommunications	82,700	92,500	126,100	116,794	127,088	137,497	148,002	157,830	161,924	169,752	177,755	185,938	194,302
Adjustment	9 -	34	72										
Italy	9,179	18,263	22,791	27,257	31,867	36,678	41,692	46,716	49,591	52,532	55,542	58,620	61,769
Mobile telecommunications	9,000	18,200	22,700	27,175	31,785	36,596	41,610	46,634	49,509	52,450	55,460	58,538	61,687
Homes Connected	68.8	143.1	197.0	233.6	270	307	343	380	398	416	434	453	471
Households	60670	60590	60480	60740	60720	60690	60660	60620	60580	60573	60566	60559	60551
Penetration Rate	163%	168%	174%	191%	194%	197%	200%	203%	206%	206%	206%	206%	206%
Market Share	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Blended Revenue Per User (ARPU)	131	127	115	116	118	119	121	123	124	126	128	129	131
Others	182	100	82	82	82	82	82	82	82	82	82	82	82
Adjustment	- 3 -	37	9										
Other Income	0	2509	8873	8873	8873	8873	8873	8873	8873	8873	8873	8873	8873
Loss from discontinued operations	674	0	0	0	0	0	0	0	0	0	0	0	0
Total Operating Expenses	755,848	800,841	925,032	953,862	998,574	1,044,346	1,092,518	1,137,920	1,164,451	1,191,341	1,218,955	1,247,303	1,276,392
Cost of Sales	283,689	286,011	321,704	331,981	347,766	363,926	380,933	396,962	406,329	415,822	425,571	435,579	445,849
SG&A	286,112	333,650	380,957	392,941	411,625	430,752	450,882	469,854	480,941	492,178	503,717	515,563	527,718
Depreciations	174,142	169,226	208,837	215,406	225,649	236,134	247,169	257,570	263,647	269,807	276,133	282,627	289,290
Impairments	11905	11954	13534	13534	13534	13534	13534	13534	13534	13534	13534	13534	13534
Other Expenses	6969	2820	19987	20,625	21,606	22,610	23,667	24,663	25,245	25,834	26,440	27,062	27,700
EBIT	**78,571**	**115,011**	**102,466**	**105,669**	**110,916**	**116,286**	**121,938**	**127,265**	**130,378**	**133,533**	**136,773**	**140,099**	**143,512**
Taxes	23,360	23,322	33,189	34,392	36,099	37,847	39,686	41,420	42,433	43,460	44,515	45,597	46,708
Core Result (Noplat)	55,904	**92,077**	**68,786**	**71,278**	**74,817**	**78,439**	**82,252**	**85,845**	**87,945**	**90,073**	**92,259**	**94,502**	**96,804**
Non Core Business													
Finance Income	45,312	19,977	357	357	358	358	359	359	360	360	360	361	361
Taxes	5,769	3,103 -	2,224 -	2,226 -	2,229 -	2,232 -	2,236 -	2,239 -	2,240 -	2,242 -	2,244 -	2,246 -	2,248
OCI	12,432	665	14,269	14,269	14,269	14,269	14,269	14,269	14,269	14,269	14,269	14,269	14,269
Non Core Core Result	27,111	**16,209** -	**11,688**	**11,686** -	**11,682** -	**11,678** -	**11,675** -	**11,671** -	**11,669** -	**11,667** -	**11,665** -	**11,662** -	**11,660**
Financial													
Finance Expenses	101,467	55,903	63,495	76,956	72,962	80,796	111,991	82,503	88,430	91,582	94,608	97,595	100,571
Tax Shield	12,918	8,684	9,863	11954	11333	12558	17396	12816	13736	14226	14696	15160	15622
Financial Result -	88,549 -	**47,219** -	**53,632** -	**65,002** -	**61,628** -	**68,245** -	**94,595** -	**69,688** -	**74,694** -	**77,356** -	**79,912** -	**82,435** -	**84,949**
Comprehensive Income -	**5,533**	**61,067**	**3,466** -	**5,410**	**1,506** -	**1,485** -	**24,018**	**4,486**	**1,582**	**1,050**	**682**	**405**	**196**

Figure 6. Historical and forecasted Income Statement

(All values in '000 euros unless specified)	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Core Invested Capital													
Operating Cash	14,625	16,074	13,832	17,223	18,042	18,880	19,763	20,594	21,080	21,573	22,078	22,598	23,130
(% Revenues)	*2%*	*2%*	*1%*										
Accounts receivables	108,965	82,472	60,002	98,942	103,647	108,463	113,532	118,309	121,101	123,930	126,836	129,818	132,879.16
Collection period	47	33	21										
Inventories	18,552	10,063	16,586	16,835	17,636	18,455	19,318	20,131	20,606	21,087	21,582	22,089	22,609.95
Holding Period	24	13	19										
Other assets	6321	11046	12419	12,810	13,419	14,042	14,699	15,317	15,678	16,045	16,421	16,807	17,203
(% Revenues)	1%	1%	1%										
Contract assets	0	0	44076	45,462	47,624	49,837	52,166	54,361	55,644	56,944	58,279	59,650	61,056
(% Revenues)	0%	0%	4%										
Programme assets	30312	22250	21379	21,327	21,324	21,315	21,343	21,282	21,271	21,337	21,402	21,466	21,530
(% Cable TV Revenues)	11%	7%	7%										
Income tax receivable	2804	1727	547	564	591	618	647	675	691	707	723	740	758
(% Revenues)	0%	0%	0%										
Deferred tax assets	3,126	2,828	2,659	2,743	2,873	3,007	3,147	3,279	3,357	3,435	3,516	3,599	3,683
(% Revenues)	0%	0%	0%										
PPE	825,989	900,691	1,138,992	1,174,821	1,230,684	1,287,870	1,348,054	1,404,779	1,437,926	1,471,521	1,506,022	1,541,438	1,577,782
(% Revenues)	98%	98%	110%										
Intangible assets	206,812	215,248	245,852	263,705	276,244	289,081	302,590	315,322	322,763	330,304	338,048	345,998	354,155
(% Revenues)	72%	65%	65%										
Long-term receivables	3,927	2,018	5,584	4,848	5,089	5,335	5,594	5,839	5,982	6,126	6,275	6,427	6,584
(% Revenues)	17%	9%	17%										
Other non-current taxes	0	0	4629	4,775	4,775	4,775	4,775	4,775	4,775	4,775	4,775	4,775	4,775
(% Revenues)	0%	0%	0%										
Deferred tax liability	-34812	-45517	-60652 -	62,560 -	65,535 -	68,580 -	71,785 -	74,805 -	76,570 -	78,359 -	80,197 -	82,083 -	84,018
(% Revenues)	4%	5%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Decomission provisioning	0	-5409	-6082 -	6,274 -	6,773 -	7,302 -	7,854 -	8,389 -	8,674 -	9,049 -	9,432 -	9,824 -	10,224
(% DTH and Mobile Telecom Revenues)	0	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Other long term liabilities	-46076	-36738	-34600 -	35,688 -	37,385 -	39,123 -	40,951 -	42,674 -	43,681 -	44,701 -	45,750 -	46,825 -	47,929
(% Revenues)	5%	4%	3%										
Trade and other payables	-373969	-358074 -	461,463 -	476,204 -	464,225 -	485,796 -	508,498 -	529,895 -	542,399 -	555,071 -	568,085 -	581,445 -	595,154
Payable Period	481	457	524										
Income tax payable	-1390	0	-543 -	823 -	862 -	902 -	944 -	984 -	1,007 -	1,031 -	1,055 -	1,080 -	1,105
(% SGA)	0%	0%	0%										
Provisions	0	-2497	-7225 -	11,015.30 -	11,539.08 -	12,075.27 -	12,639.57 -	13,171.42 -	13,482.22 -	13,797.21 -	14,120.69 -	14,452.76 -	14,793.53
(% Opex)	0%	0%	1%										
Deferred revenues	-14684	-11267	0 -	10,619 -	11,124 -	11,640 -	12,184 -	12,697 -	12,997 -	13,300 -	13,612 -	13,932 -	14,261
(% Revenues)	2%	1%	0%										
Contract liability	0	0	-23038	23763	24893	26049	27267	28414	29084	29764	30462	31178	31913
(% Revenues)	0%	0%	2%										
Total Core Invested Capital	**750,502**	**804,915**	**972,954**	**1,084,634**	**1,169,398**	**1,222,309**	**1,278,038**	**1,330,460**	**1,361,146**	**1,392,238**	**1,424,166**	**1,456,942**	**1,490,574**

Figure 7. Historical and forecasted Balance sheet

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Core													
EBIT	78,571	115,011	102,466	105,669	110,916	116,286	121,938	127,265	130,378	133,533	136,773	140,099	143,512
Nominal Income Taxes	- 13,785	- 18,480	- 16,380	- 34,392	- 36,099	- 37,847	- 39,686	- 41,420	- 42,433	- 43,460	- 44,515	- 45,597	- 46,708
Tax Adjustments	- 15,343	- 7,944	- 14,585										
NOPLAT	49,442	88,587	71,501	71,278	74,817	78,439	82,252	85,845	87,945	90,073	92,259	94,502	96,804
D&A	174,142	169,226	208,837	215,406	225,649	236,134	247,169	257,570	263,647	269807.08	276132.84	282626.55	289290.25
Core Gross FCF	223,584	257,813	280,338	286,684	300,465	314,573	329,421	343,415	351,592	359,880	368,391	377,129	386,095
CAPEX	-	243,928 -	447,138 -	251,235 -	281,512 -	293,320 -	307,354 -	314,294 -	296,795	-303,402	-310,633	-318,043	-325,634
ΔNWC		11,680	94,351 -	61,745 -	21,163	12,170	12,808	12,071	7,054	7,149	7,342	7,537	7,734
Δ Other Core Invested Capital		5,192 -	35,356 -	3,487 -	7,232 -	7,378 -	7,808 -	7,257 -	4,292 -	4,342 -	4,458 -	4,576 -	4,694
Change in Core invested Capital	-	227,056 -	388,143 -	316,468 -	309,907 -	288,529 -	302,354 -	309,480 -	294,033	-300,595	-307,750	-315,082	-322,594
Operating Free Cash Flows		**30,757** -	**107,805** -	**29,784** -	**9,442**	**26,044**	**27,067**	**33,935**	**57,559**	**59,285**	**60,642**	**62,047**	**63,501**
Non-Core													
EBIT (Non-Core)	45,312	19,977	357	357	358	358	359	359	360	360	360	361	361
Δ Securities		42,146 -	10,088	-	-	-	-	-	-	-	-	-	-
Δ Other Non-Core Invested Capital		23,848	7,615	31	48	49	51	48	28	29	29	30	31
Δ Non-Core Invested Capital		65,994 -	2,473	31	48	49	51	48	28	29	29	30	31
Non-Operating Cash Flows		**85,971** -	**2,116**	**388**	**405**	**407**	**410**	**408**	**388**	**389**	**390**	**391**	**392**
Total Free Cash Flows		**116,728** -	**109,921** -	**29,396** -	**9,036**	**26,451**	**27,477**	**34,343**	**57,947**	**59,673**	**61,031**	**62,438**	**63,893**

Figure 8. Historical and forecasted Free Cash Flows

Valuation

WACC Calculation

1 Computing the Median Unlevered Beta of the Industry

	Raw Beta	Market cap	Total Debt	D/EV	E/EV	Beta Debt	Unlevered Beta	
Digi Communications	0.72	$ 349.25	$ 884.82	71.7%	28.3%	0.57	0.61	Bloomberg
Kazakhtelecom	1.32	$ 822.00	$ 497.43	37.7%	62.3%	1.08	1.23	
GlobalStar INC	1.57	$ 808.16	$ 404.69	33.4%	66.6%	1.94	1.70	
Partner Communication	0.9	$ 659.06	$ 318.44	32.6%	67.4%	1.71	1.16	
Smartone Telecommunications	0.39	$ 942.98	$ 259.56	21.6%	78.4%	0.36	0.38	
Telia Lietuva AB	0.61	$ 643.79	$ 189.22	22.7%	77.3%	2.28	0.99	
Hengxin Shambala Culture	1	$ 598.43	$ 83.40	12.2%	87.8%		0.88	
H&R Century Union Corp-A	1.07	$ 592.78	$ 56.49	8.7%	91.3%		0.98	
Ooredoo	1.28	$ 838.59	$ 30.10	3.5%	96.5%	0.61	1.26	
Vodacom Tanzania	1	$ 621.07	$ 2.09	0.3%	99.7%	NA		
Median Unlevered Beta	1.020							

Target D/EV	19%
Target E/EV	81%

2 Relevering the Industry's unlevered Beta, with Digi's capital structure

Bu	D/EV	E/EV	Bd	Be
1.020	19.19%	80.81%	0.6	1.13

3 Computing the Cost of Equity by the CAPM

Be	Rf	Rm	Re
1.128	-0.1%	5.4%	0.061

Assumptions

Rf	-0.1%
Market Risk	5.4%

4 Computing the WACC

E/EV	D/EV	Re	Rd	Tax Rate	WACC
81%	19%	0.061	3.017%	16%	0.054

Figure 9. Weighted average cost of capital calculation for Digi Communication

Valuation Summary

Target price DCF	€10.22
w DCF	*95%*
Target price Multiples	€16.46
w Multiples	*5%*
Final target price	**€10.53**

Arbitrage Opportunity

# shares	63,500,000
target price	€10.53
current price	€5.50
	€319,608,488

Figure 10. Digi Communication valuation -overview

Peer Group	Shares Outstanding	Share Price	Market Cap	Total Debt	Cash & Equivalents	Net Debt	EV	Sales	EBITDA	EBITA	EV/EBITA	EV/Sales	EV/EBITDA
DIGI COMMUNICATIONS NV	**64**	**5.50**	**349**	**884.82**	**13.8**	**871**	**1,220**	**1,038**	**335**	**189.8**	**6.4**	**1.18**	**3.64**
Kazakhtelecom	11	76.75	822	497.43	103.9	**394**	**1,216**	547.8	196.5	99.5	**12.2**	**2.22**	**6.19**
GlobalStar INC	1,450	0.56	808	404.69	13.3	**391**	**1,200**	110	28.3	- 32.8	- **36.6**	**10.88**	**42.36**
Partner Communication	154	4.28	659	318	97.0	**221**	**881**	768.4	153.5	84	**10.5**	**1.15**	**5.74**
Smartone Telecommunications	1,120	0.84	943	260	220.5	**39**	**982**	941.0	997.3	124	**7.9**	**1.04**	**0.98**
Telia Lietuva AB	583	1.11	644	189	28.7	**160**	**804**	376.5	127.2	77	**10.5**	**2.14**	**6.32**
Hengxin Shambala Culture	530	1.13	598	83	74.4	**9**	**607**	91.8	19.2	12	**49.3**	**6.62**	**31.64**
H&R Century Union Corp-A	981	0.60	593	56	62.2	- **6**	**587**	170.2	47.3	47	**12.5**	**3.45**	**12.43**
Ooredoo	651	1.29	839	30	108.3	- **78**	**760**	624.3	253.4	131	**5.8**	**1.22**	**3.00**
Vodacom Tanzania	2	305.95	621	2	158.3	- **156**	**465**	371.5	107.8	39	**11.9**	**1.25**	**4.31**
		Median									10.49	1.69	5.96

Multiple		Metric	Implied EV	MV Equity	Implied Price per Share
EV/EBITA	10.49	189.8	1,990	1,119	€17.63
EV/Sales	1.69	1,038	1,758	887	€13.97
EV/EBITDA	5.96	335	2,000	1,129	€17.78

Multiples Average	€16.46
Implied EV (m€)	€1,930

Figure 11. Digi Communication peer group - financial information

Sensitivity Analysis

		Growth						
		2.29%	2.34%	2.39%	2.44%	2.49%	2.54%	2.59%
WACC	5.59%	€ 1,380,765	€ 1,399,588	€ 1,418,998	€ 1,439,025	€ 1,459,697	€ 1,481,047	€ 1,503,108
	5.54%	€ 1,404,825	€ 1,424,309	€ 1,444,412	€ 1,465,162	€ 1,486,593	€ 1,508,739	€ 1,531,634
	5.49%	€ 1,429,642	€ 1,449,821	€ 1,470,651	€ 1,492,163	€ 1,514,392	€ 1,537,375	€ 1,561,149
	5.44%	€ 1,455,253	€ 1,476,162	€ 1,497,756	€ 1,520,070	€ 1,543,140	€ 1,567,004	€ 1,591,706
	5.39%	€ 1,481,697	€ 1,503,373	€ 1,525,771	€ 1,548,929	€ 1,572,884	€ 1,597,680	€ 1,623,361
	5.34%	€ 1,509,013	€ 1,531,497	€ 1,554,742	€ 1,578,789	€ 1,603,679	€ 1,629,458	€ 1,656,174
	5.29%	€ 1,537,246	€ 1,560,580	€ 1,584,719	€ 1,609,704	€ 1,635,580	€ 1,662,398	€ 1,690,208

		Growth						
		2.29%	2.34%	2.39%	2.44%	2.49%	2.54%	2.59%
WACC	5.59%	€ 8.03	€ 8.32	€ 8.63	€ 8.94	€ 9.27	€ 9.61	€ 9.95
	5.54%	€ 8.41	€ 8.71	€ 9.03	€ 9.36	€ 9.69	€ 10.04	€ 10.40
	5.49%	€ 8.80	€ 9.12	€ 9.44	€ 9.78	€ 10.13	€ 10.49	€ 10.87
	5.44%	€ 9.20	€ 9.53	€ 9.87	€ 10.22	€ 10.58	€ 10.96	€ 11.35
	5.39%	€ 9.62	€ 9.96	€ 10.31	€ 10.68	€ 11.05	€ 11.44	€ 11.85
	5.34%	€ 10.05	€ 10.40	€ 10.77	€ 11.15	€ 11.54	€ 11.94	€ 12.36
	5.29%	€ 10.49	€ 10.86	€ 11.24	€ 11.63	€ 12.04	€ 12.46	€ 12.90

Figure. 12. Sensitivy analysis on the Discounted Cash Flow Method

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Report Recommendations

Buy

We issue this recommendation based on the results we have achieved from both DCF and relative valuation.

Digi's closing price for January 2020 is €6.98.

Based on the multiples approach method, Digi' stock is undervalued, with a final target price of €16.46. DCF yielded the same results with an implied share price of €10.23. Our investment recommendation is to buy and hold Digi's stock.

This report was prepared by [*insert student's name*], a Master in Finance student of Nova School of Business and Economics ("Nova SBE"), within the context of the Field Lab – Equity Research.

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A Work Project presented as part of the requirements for the Award of a Master Degree in Finance from the NOVA – School of Business and Economics.

The deployment of 5G in Europe and its effect on Digi Communication

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Abstract

This paper focuses on the opportunities and threats of 5G. On one hand, the report focuses on the analysis of 5G on a European level to understand, whether 5G will thrive to its expectations. On the other hand, it evaluates the opportunities and threats that Digi may face with the arrival of 5G.

Keywords (up to four)
5G, Eastern Europe, Digi Communications

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The telecommunications operators strive to offer a greater consumer experience by proposing new technologies such as FTTH in the fixed broadband or 5G in the mobile internet. The 5G network will provide increased capacity for many internet-connected devices that we use on an everyday basis, known as the Internet of Things. The 5G industry is expected to reach €209b by 2025 (AbiResearch, 2016). In theory, 5G would be the first wireless technology able to compete with the fixed broadband networks in terms of bandwidth capabilities. This paper investigates to what extent Digi will be affected by the 5G roll-out in Europe. First, I will investigate where does 5G stand in Europe, then I will analyse whether 5G will take-off as expected. Finally, I will evaluate the effect on Digi by having a closer look on its fixed and mobile business lines.

5G in Europe – EU prepares for a 5G adoption

The European Commission (EC) established a Public Private Partnership in 2013, an initiative to accelerate research and innovation in 5G technology with a public funding of €700m until 2020 (European Commission, 2019). EC has introduced an action plan with key elements to coordinate 5G deployment across all EU member states targeting early introduction by 2018, and commercialization by 2020. EC dictates to its member countries to make provisional spectrum bands available for 5G by the end of 2019 (European Commission, 2016). The 700MHz spectrum is critical for 5G success and needs to be available in all member states by 2020. However, it is unlikely that all countries will meet these targets. EU has been active in the 5G trials by doing more than 138 across all 28 member states as of 2019. However, only 7% of the 5G spectrum has been assigned. In general, EU compares reasonably well with other leading countries such as U.S, Japan or Singapore (Blackman et al., 2019). EU has a competitive advantage as it hosts equipment manufacturers such as Nokia or Ericsson. On the country level, Romania is advanced in the 5G roll-out as MNOs started its commercialization (as opposed to Hungary for example). In November 2019, Orange has launched 5G offer in three Romanian cities and is expected to continue deployment by 2020 and beyond (Constantin, 2019).

Several constraints slow down the 5G adoption

There has been a big excitement about 5G all over the world – in particular in Asia, Europe and North America. However, there are several constraints that stay on the way of a widespread adoption of 5G such as large Capex/Opex obligations that MNO face, the spectrum fragmentation, and the low availability of devices. First, in order to provide a FTTH-comparable service, 5G will need a high network densification. The current 4G mobile network uses so-called macro cells, in the form of towers or rooftop antennas, and small cells that are cellular radio access nodes that are used to densify the network. It is estimated that 5G network will need to be 10x denser than 4G network (Getta 2019). In other words, MNOs won't be able to upgrade the current infrastructure but will need to invest in installing more small cells to be able to cover 5G nation-wide. Consequently, this will result in very high Capex/Opex for MNOs and there might be a lack of incentives for the first movers. There must be an active involvement from the government that will support the deployment of 5G (e.g. subsidies) as well as a coalition between largest MNOs to have a real adoption of 5G. Spectrum fragmentation is another bottleneck for the development of 5G. The link of spectral efficiency will not be enough from 4G to 5G because of the increasing traffic demand. This means that new spectrum is needed to allocate frequencies dedicated for 5G (Graeme, 2018). That can be done either by giving free available spectrum or by making available spectrum that is currently used for other uses (e.g. emergency service spectrum in France made available for 5G). Because of the necessary coordination between stakeholders and because of the auctions, the entire process slows down the adoption of 5G. Finally, even though 5G is getting much attention in the media and government the consumers do not really need 5G that much and it is rather the manufacturers (e.g. Huawei, Ericsson) that are at the source of 5G excitement. The number of devices that is suitable for receiving 5G is very limited. For instance, in the U.S., only LG and OnePlus are selling 5G phones. Also, hotspots are in the price range of $500-$600, adding the 5G plan to it makes it very expensive for the consumers (Perry, 2019).

Digi faces possible loss in market share in mobile segments

In Romania, Orange started with its commercial offer of 5G in three cities. However, Romanian adoption of 5G will depend of the auctions that will take place in 2020. It is expected that in Romania, 5G will get to approximately 11% of total mobile subscriptions by 2024 (Verdict 2019). Digi Communications has so far performed only one live 5G test in the capital of Romania (Gaal, 2019). In Spain, which is Digi's 2nd largest mobile market in terms of revenues, an auction on 3.6-3.8GHz has taken place in 2018. Vodafone Spain dominated in the bidding followed by Orange and Telefonica, yet Digi did not participate (European Commission, 2018). Vodafone Spain has launched 5G services in 15 Spanish cities in 2019. Customers can use 5G service for no extra charge and experience download speeds of up to 1Gbps reaching 2Gbp/s in 2020 (European Commission 2018). In both Romania and Spain, the 5G will complement the existing 4G/LTE offers and are unlikely to result in higher ARPU but rather attract more customers due to a better service. As Digi is missing on the 5G deployment in Spain and has a slower adoption in Romania than its competitor Orange, both revenue lines can be negatively affected. In a worst-case scenario analysis, Orange Romania would grow at an average of historical Digi net adds growth in 2014 - 2019 (321k net adds per year) and all the other players, including Digi, would grow with the market. This would result in a cumulative loss in revenues of €938.0m in 2019 - 2028. Meanwhile in Spain, if all players active in the 5G deployment would continue growing at the same pace (average ~305 net adds per year), while all other players would grow with the market, Digi would have a cumulative loss in revenues of €591.3m in 2019-2028. In that scenario the combined outcome is a cumulative loss of €1,529m in 2019 - 2028.

Digi can be impacted positively on the fixed internet side

Both 5G and FTTH can offer theoretical speeds of up to 10Gbit/s, but the speeds are closer to 1Gbit/s due to the fact of sharing the connection with other users (e.g. GPON technology for FTTH and wavelengths for 5G). However, 5G is inferior to fibre in terms of reliability, latency and

symmetrical connections that are increasing in importance for end-customer use cases. In 5G, the quality of the service and the speeds depend highly on the number of users in the cell. Replacing fixed line with 5G is a relevant topic in the USA, however conditions in Europe are less favourable for 5G. In fact, the mobile ARPU in Europe is significantly lower than in the US, which is driven by competitive intensification in small markets. In Europe regulators concentrated on low and mid band spectrum while US deployed early on high spectrum. Finally, US is a denser network with LTE being available almost nationwide thus the adoption of 5G is more favourable. Therefore, the likelihood of MNOs deploying 5G in Romania or Hungary as a market-wide replacement to fixed broadband is not probable. Nevertheless, given the fibre densification required for 5G, fibre network companies may see upside in backhaul. In fact, fibre backhaul is required for 5G network due to the additional small cells needed adding a significant number of connections. Digi is well positioned to offer FTTT (fibre-to-the-tower) service in Romania. In fact, around two thirds of 5.1m connections in 2019 were FTTH/B and Digi was the market leader with 52% market share (Dziadul, 2019). Digi is already offering FTTE (fibre to the enterprise), which is a dedicated fibre optic line offering higher bandwidths, better service level agreements €28/month. Digi could benefit of an additional cumulative revenue of €170.5m in the period 2019 - 2028 for FTTT services. There are 2,099 cells in Romania, that are expected to increase by 10x in 2028, due to densification required by 5G. I assumed that 10% of the cells will be connected by FTTT rather than wavelengths, a fair market share of 25% (4 MNOs) and an ARPU for FTTT being the same as FTTE. In Hungary, 5G adoption is slower than in Romania and Digi Communication does not have such an extensive fibre optical backbone to offer FTTT, thus the fixed internet and data business unit in Hungary is unlikely to be affected by 5G.

To sum up, 5G has its limitations as its milometer wave signals travel only short distances, which makes it very costly and suitable for urban areas only in the short-term. Some analysts believe that it will take approximately five years for the industry to deliver expected advantages of 5G

(Mkandawire, 2019). Unlike the 4G overtaking 3G in the past, the adoption of 5G will most probably be a coexistence between 4G and 5G networks. In fact, it is estimated that 15% of mobile connections in the world will be on 5G by 2025 and 59% on LTE (Tibken, 2019). On one hand, Digi does not participate in the 5G roll-out in Spain and is challenged by Orange in Romania, which may have a negative impact of €1,529m in the forecasted period On the other hand, Digi is well positioned to offer fibre to the tower services, which can bring an additional €170.5m in the forecasted period.. All in all, the 5G network seems to be over promoted and could be adopted slower than expected due to the number of restraints.

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